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Date: January, 2005

FARM MANAGEMENT

Guidelines For Estimating
Soybean Production Costs

This guide is designed to provide you with planning information and a format for calculating costs of production for a soybean enterprise. Also available, is an Excel spreadsheet that can be downloaded from the Manitoba Agriculture, Food and Rural Initiatives website.

The cash cost inputs associated with growing a crop in Manitoba are substantial. It is extremely important for farm managers to do calculations to select the optimum crop combination that will maximize profits. Detailed planning is also necessary when estimating the amount of operating credit to finance the inputs.

Producers are encouraged to calculate their own costs of production. Costs and yields will differ on each farm due to soil type, climatic conditions and agronomic practices.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local Manitoba Agriculture, Food and Rural Initiatives office.

Manitoba Agriculture and Food is Committed to
Your Future in Farming

Manitoba
Building for the Future

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Guidelines For Estimating Soybean Production Costs

This guide is designed to provide you with planning information and a format for calculating costs of production for a soybean enterprise. Also available is an Excel spreadsheet that can be downloaded from the Manitoba Agriculture, Food and Rural Initiatives website.

The cash cost inputs associated with growing a crop of soybeans are outlined. It is extremely important for farm managers to do calculations to select the optimum combination that will maximize profits. Detailed planning is also necessary when estimating the amount of operating credit to finance the crop.

Producers are encouraged to calculate their own costs of production. Costs will vary as will differ on each farm due to soil type, climate conditions and agronomic practices.

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Industry Summary

Soybeans are a long season crop, heat requiring crop. Under cool summer conditions as experienced in 2004 soybeans (and other heat loving crops) do not perform well. Over the past 8 years soybean acreage in Manitoba has increased from under 1,000 acres to over 220,000 acres with average yields of 35 plus bushels per acre (not including 2004). Soybeans can be grown for the local feed market, the crushing market or the edible food market.

Crush/Local Feed Market: Soybeans grown for crushing are currently shipped to large crushing plants in North Dakota or Minnesota. The local feed market is being supplied whole fat soybean meal by a small crushing plant located at Jordan Corner and roasted soybeans from a commercial roasting plant in the Emerson area. Roundup Ready and Convential soybeans supply these markets. **Human Food Market:** Soybeans can also be grown under identity preserved (IP) contracts for premiums above the current market price in Chicago. These IP contracts, either yellow (called white by the processors) or dark hilum beans, are shipped to Europe and Asia. Hilums are the place where the bean is attached to the pod and can be yellow, black, brown or buff in colour. Some companies are contracting yellow or clear hilum soybean varieties for the human food market, **if the soybeans meet the buyers standards.** Yellow hilum soybeans that do not meet this standard are marketed through the crushing market. This is similar to farmers who grow barley for the malting industry.

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Soybean - Cost of Production Summary January, 2005

	Conventional		Roundup Ready		
A. Operating Costs	**Cost /Acre**	**Cost /bushel**	**Cost /Acre**	**Cost /bushel**	**Your Cost**
1.01 Seed & treatment	$33.03	$0.94	$63.06	$1.80	
1.02 Inoculant	$18.35	$0.52	$18.35	$0.52	
1.03 Fertilizer	$12.95	$0.37	$12.95	$0.37	
1.04 Herbicides	$43.00	$1.23	$18.00	$0.51	
1.05 Fuel Costs	$12.11	$0.35	$11.82	$0.34	
1.06 Repair & Maintenance	$9.80	$0.28	$9.80	$0.28	
1.07 Insurance	$8.62	$0.25	$8.62	$0.25	
1.08 Miscellaneous	$8.00	$0.23	$8.00	$0.23	
1.09 Land Taxes	$5.25	$0.15	$5.25	$0.15	
Subtotal Operating	$151.11	$4.32	$155.85	$4.45	
1.10 Interest on Operating	$4.16	$0.12	$4.29	$0.12	
Total Operating Costs	**$155.27**	**$4.44**	**$160.14**	**$4.57**	
B. Fixed Costs					
2. Depreciation					
2.01 Machinery	$24.50	$0.70	$24.50	$0.70	
2.02 Storage	$1.80	$0.05	$1.80	$0.05	
3. Investment					
3.01 Land	$24.00	$0.69	$24.00	$0.69	
3.02 Machinery	$9.80	$0.28	$9.80	$0.28	
3.03 Storage	$0.88	$0.03	$0.88	$0.03	
Total Fixed Costs	**$60.98**	**$1.74**	**$60.98**	**$1.74**	
C. Labour	**$17.25**	**$0.49**	**$17.25**	**$0.49**	
Total Cost of Production	**$233.50**	**$6.67**	**$238.37**	**$6.81**	
Estimated yield per acre	**35 bu**		**35** bu		

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

Manitoba Agriculture, Food and Rural Initiatives
Farm Management

Soybean Cost of Production Worksheet
Conventional Assumptions

1. This budget provides a guideline to determine the cost of production for a soybean enterprise based on 200 acres.

2. The investment in machinery and equipment was assumed to be $245 per acre, which is approximately $20 more than a typical grain enterprise to represent the flex header purchase. Other than the flex header, the machinery complement is similar to a grain enterprise

3. A yield of 35 bushels per acre was assumed.

4. A premium inoculant program (7 lbs granular/acre plus 3/4 rate of peat) is included in the budget, with the assumption that the field seeded has not had 2 crops of well nodulated soybeans. Fields that have had 2 well nodulated crops within the last 6 years can reduce the inoculant cost. Consult your agronomist for more details.

5. A land value of $600 per acre was assumed.

A. Operating Costs				Your Farm
1.01 Seed, treatment & inoculant				
		200,000	plants/acre	
	÷	3,000	seeds/lb	
	x	1.15	emergence factor	
	=	77	seeding rate lbs/acre	
	x	$0.39	seed cost ($/lb)	
	+	$3.00	seed treatment	
	=	**$33.03**	**$ /acre**	
1.02 Inoculant *				
		$18.35	**$ /acre**	

* When growing soybeans on the same field for the second or third time inoculant costs can be decreased to $6 - $12/acre if the previous soybean crop(s) had good nodulation.

1.03 Fertilizer

Nitrogen		10	lbs/acre	
	x	$0.35	cost/lb	
	=	$3.50	$ /acre	
P2O5		35	lbs/acre	
	x	$0.270	cost/lb	
	=	$9.45	$ /acre	
K2O		0	lbs/acre	
	x	$0.175	cost/lb	
	=	$0.00	$ /acre	
Sulfur		0	lbs/acre	
	x	$0.28	cost/lb	
	=	$0.00	$ /acre	
Zinc		0	lbs/acre	
	x	$1.50	cost/lb	
	=	$0.00	$ /acre	
Total	=	$12.95	**$ /acre**	

1.04 Chemicals

	$0.00	roundup burnoff	
+	$31.00	post emergent broadleaf	
+	$12.00	post emergent grass	
+	$0.00	Roundup	
=	$43.00	**$ /acre**	

1.05 Fuel Costs

a) Field Fuel Costs

Operation	Times Over	Width feet	Speed mph	Fuel $/ac.	
Cultivate	1	24	5	1.54	
Spray	1	90	7	0.29	
Plant	1	24	5	1.54	
Spray	2	90	7	0.59	
Combine	1	24	4	1.92	
Total				**$5.87**	

b) Truck Fuel Costs - from field to storage & market

	35	gross yield bu/acre
=	210	total tons
÷	5	truck capacity (tons)
=	42	trips
x	5	miles dist/trip
=	210	total miles
÷	2	fuel consumption (miles/gal)
=	477	total litres (4.546 litres/gal)
÷	200	total acres
=	2.385	litres/acre
x	$0.52	fuel cost ($/litre)
Total =	**$1.24**	**trucking ($ /acre)**

c) Other Fuel Costs **$5.00** **$ /acre**

Total = $12.11 fuel costs ($ /acre)

1.06 Repair & Maintenance

	4.0%	percentage rate
x	$245	investment/acre
=	**$9.80**	**$ /acre**

1.07 Insurance

	$5.47	crop insurance	_____
+	$3.15	hail insurance	_____
=	**$8.62**	**$ /acre**	_____

1.08 Miscellaneous

=	**$8.00**	**$ /acre**	_____

1.09 Land Taxes

=	**$5.25**	**$ /acre**	_____

1.10 Interest on Operating

	$151.11	subtotal operating	_____
÷	2	average	_____
x	5.5%	interest rate	_____
=	**$4.16**	**$ /acre**	_____

B. Fixed Costs

2. Depreciation

$$\frac{\text{Original Value - Salvage Value}}{\text{Useful Life}}$$

2.01 Machinery

	$245.00	cost/acre	
-	$0.00	salvage value	
÷	10	useful life	
=	**$24.50**	**$ /acre**	

2.02 Storage

	$40.00	cost/acre	
-	$4.00	salvage value	
÷	20	useful life	
=	**$1.80**	**$ /acre**	

3. Investment

$$\frac{\text{Original Value + Salvage Value}}{2} \times \text{Investment Rate}$$

3.01 Land

	$600.00	cost/acre	
x	4.0%	% investment rate	
=	**$24.00**	**$ /acre**	

3.02 Machinery

	$245.00	cost/acre	
+	$0.00	salvage value	
x	4.0%	% investment rate	
=	**$9.80**	**$ /acre**	

3.03 Storage

	$40.00	cost/acre
+	$4.00	salvage value
÷	2	average
x	4.0%	% investment rate
=	**$0.88**	**$ /acre**

C. Labour

	$11.50	$/hour
x	1.5	hours/acre
=	**$17.25**	**$ /acre**

Soybean Cost of Production Worksheet
Roundup Ready Assumptions

1. This budget provides a guideline to determine the cost of production for a soybean enterprise based on 200 acres.

2. The investment in machinery and equipment was assumed to be $245 per acre, which is approximately $20 more than a typical grain enterprise to represent the flex header purchase. Other than the flex header, the machinery complement is similar to a grain enterprise

3. A yield of 35 bushels per acre was assumed.

4. The "technology use fee" is included in the cost of the Roundup Ready seed.

5. A premium inoculant program (7 lbs granular/acre plus 3/4 rate of peat) is included in the budget, with the assumption that the field seeded has not had 2 crops of well nodulated soybeans. Fields that have had 2 well nodulated crops within the last 6 years can reduce the inoculant cost. Consult your agronomist for more details.

6. A land value of $550 per acre was assumed.

A. Operating Costs			**Your Farm**
1.01 Seed, treatment & inoculant			
	200,000	plants/acre	_____
÷	3,000	seeds/lb	_____
x	1.15	emergence factor	_____
=	77	seeding rate lbs/acre	_____
x	$0.78	seed cost ($/lb)	_____
+	$3.00	seed treatment	_____
=	**$63.06**	**$ /acre**	_____
1.02 Inoculant *			
	$18.35	**$ /acre**	

* When growing soybeans on the same field for the second or third time inoculant costs can be decreased to $6 - $12/acre if the previous soybean crop(s) had good nodulation.

1.03 Fertilizer

Nitrogen		10	lbs/acre	
	x	$0.35	cost/lb	
	=	$3.50	$ /acre	
P2O5		35	lbs/acre	
	x	$0.270	cost/lb	
	=	$9.45	$ /acre	
K2O		0	lbs/acre	
	x	$0.175	cost/lb	
	=	$0.00	$ /acre	
Sulfur		0	lbs/acre	
	x	$0.28	cost/lb	
	=	$0.00	$ /acre	
Zinc		0	lbs/acre	
	x	$1.50	cost/lb	
	=	$0.00	$ /acre	
Total	**=**	**$12.95**	**$ /acre**	

1.04 Herbicides

	$0.00	burnoff	
+	$0.00	volunteer control	
+	$0.00	grass control	
+	$18.00	in crop Roundup	
=	**$18.00**	**$ /acre**	

1.05 Fuel Costs

a) Field Fuel Costs

Operation	Times Over	Width feet	Speed mph	Fuel $/ac.	
Cultivate	1	90	7	0.29	
Spray	1	24	5	1.54	
Plant	1	90	7	0.29	
Spray	1	24	4	1.92	
Combine	1	24	5	1.54	
Total				**$5.58**	

b) Truck Fuel Costs - from field to storage & market

	35	gross yield bu/acre	
=	210	total tons	
÷	5	truck capacity (tons)	
=	42	trips	
x	5	miles dist/trip	
=	210	total miles	
÷	2	fuel consumption (miles/gal)	
=	477	total litres (4.546 litres/gal)	
÷	200	total acres	
=	2.385	litres/acre	
x	$0.52	fuel cost ($/litre)	
Total =	**$1.24**	**trucking ($ /acre)**	

c) Other Fuel Costs **$5.00** **$ /acre**

Total = $11.82 fuel costs ($ /acre)

1.06 Repair & Maintenance

4.0%	percentage rate	
x $245	investment/acre	
= $9.80	**$ /acre**	

1.07 Insurance

	$5.47	crop insurance	
+	$3.15	hail insurance	
=	**$8.62**	**$ /acre**	

1.08 Miscellaneous

=	**$8.00**	**$ /acre**	

1.09 Land Taxes

=	**$5.25**	**$ /acre**	

1.10 Interest on Operating

	$155.85	subtotal operating	
÷	2	average	
x	5.5%	interest rate	
=	**$4.29**	**$ /acre**	

B. Fixed Costs

2. Depreciation

$$\frac{\text{Original Value - Salvage Value}}{\text{Useful Life}}$$

2.01 Machinery

	$245.00	cost/acre	_____
-	$0.00	salvage value	_____
÷	10	useful life	_____
=	**$24.50**	**$ /acre**	_____

2.02 Storage

	$40.00	cost/acre	_____
-	$4.00	salvage value	_____
÷	20	useful life	_____
=	**$1.80**	**$ /acre**	_____

3. Investment

$$\frac{\text{Original Value + Salvage Value}}{2} \times \text{Investment Rate}$$

3.01 Land

	$600.00	cost/acre	_____
x	4.0%	% investment rate	_____
=	**$24.00**	**$ /acre**	_____

3.02 Machinery

	$245.00	cost/acre	_____
+	$0.00	salvage value	_____
x	4.0%	% investment rate	_____
=	**$9.80**	**$ /acre**	_____

3.03 Storage

	$40.00	cost/acre	
+	$4.00	salvage value	
÷	2	average	
x	4.0%	% investment rate	
=	**$0.88**	**$ /acre**	

C. Labour

	$11.50	$/hour	
x	1.50	hours/acre	
=	**$17.25**	**$ /acre**	

For further information contact your local Manitoba Agriculture, Food and Rural Initiatives office.

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